THE CORAL TRIANGLE INITIATIVE ON CORAL REEFS, FISHERIES AND FOOD SECURITY

ECOSYSTEM APPROACH TO MANAGING COASTAL AND MARINE RESOURCES IN TIMOR-LESTE

DILI, TIMOR-LESTE, JUNE 20-22, 2011

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Cover Photo: Fishing Boat in Dili, Timor-Leste Photo Credit: Rui Pinto/CTSP

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EXECUTIVE SUMMARY

The Training Course on Ecosystem Approaches to Managing Coastal and Marine Resources was conducted in Timor-Leste on June 20-22, 2011 at the East Timor Development Agency (ETDA) in Dili, Timor-Leste.The training was jointly organized by the US Coral Triangle Initiative Support Program through the Program Integrator, the Coral Triangle Support Partnership (CTSP) and the National Oceanic and Atmospheric Administration (NOAA), in collaboration with the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), the National Marine Fisheries Service of the U.S., Pacific Command (PACOM) of the US Navy, and the Ministry of Agriculture and Fisheries (MAF) of Timor-Leste. It was financially supported by the United States Navy, and the GEF/UNDP/UNOPS Regional Programme on the Implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA).

The training course was attended by thirty five (35) participants from the Ministry of Agriculture and Fisheries, National Directorate for Environment (Ministry of Economy and Development), National Directorate of Culture and Art, District Offices for Fisheries, Environment, Forestry and Natural Resources in Manatuto, Liquica and Lautem, FAO project officers in the Districts of Oecuse, Liquica, Bobonaro, Baucau and Atauro, and students from the University of Timor-Leste. The participants include MAF officers and staff involved with the PEMSEA, CTI/CTSP, ATSEA, and FAO projects.

The three-day learning event was primarily set up to answer questions on how coastal areas and fisheries can be managed and what tools and methods are available to resource managers. The Integrated Coastal Management (ICM) component of the training provided the participants with a better understanding of the ICM framework and processes and how it can be used to promote sustainable fisheries management. The fisheries management component, on the other hand, enabled the participants to learn about the principles and framework of Ecosystem Approach to Fisheries Management (EAFM). The third and last day was entirely used for action planning, particularly in the mapping of activities to initiate ICM programs and the identification and prioritization of fisheries management immediate actions.

The training course not only resulted in a better understanding of the ICM and EAFM concepts, framework and practices among participants but also served as a venue for promoting partnership and strengthened collaboration between PEMSEA, US CTI Support Program and MAF, national agencies, district offices, academic institutions, and ongoing programs/projects in Timor-Leste concerning marine and coastal management (PEMSEA, CTI, ATSEA, FAO). Capacity building and technical needs were identified, and initial plans for follow on trainings agreed.

I. INTRODUCTION

The Training Course on Ecosystem Approaches to Managing Coastal and Marine Resources in Timor-Leste was conducted on June 20-22, 2011 at the East Timor Development Agency (ETDA) in Dili, Timor-Leste. The objective of the training course was to provide participants with a better understanding of the concepts, frameworks, processes and linkages of ICM and EAFM, and how they can be used to promote sustainable coastal and fisheries management. It was intended to strengthen participants' knowledge on how to prepare and initiate a coordinated ICM and EAFM program in their local areas.

The training course was primarily designed to answer questions on how coastal areas and fisheries can be managed and what tools and methods are available to fisheries resource managers. It stressed the need for an informed decision making in coastal and fisheries management and provided a comprehensive "snapshot" of the marine capture fisheries in general and fisheries management in particular, through the introduction of a range of information, principles, concepts, and options that will help decision makers plan and implement management interventions. The ICM component of the training provided the participants with a better understanding of the ICM framework and processes and how it can be used to promote sustainable fisheries management. The fisheries management component, on the other hand, enabled the participants to learn about the principles and framework of ecosystem approach to fisheries management (EAFM).

Upon course completion, participants were expected to:

1. Recognize the need for integrated management of marine and coastal resources
2. Appreciate the basic concepts, principles, framework and processes of ICM and EAFM and how their application strengthens governance for sustainable development of coastal areas
3. Ascertain how fisheries and sustainable livelihood development can be integrated into the ICM governance and management framework along with other key aspects of sustainable development (e.g., natural and man-made hazard, biodiversity conservation, pollution and waste management and water use and supply management), which may have major impacts on the fisheries sector.
4. Recognize the requirements, key activities and tools of the various stages of the ICM and EAFM program development and implementation cycle and the essential tools that are useful to support fisheries management.
5. Be aware of the basic steps of preparing and initiating a coordinated ICM and EAFM program.
6. Identify and prioritize immediate next step activities in ICM and EAFM

II. TRAINING PROCEEDINGS

The training course was structured into 3 parts, namely:

1. Day 1: Development and Implementation of Integrated Coastal Management (ICM) Programs
2. Day 2: The Ecosystem Approach to Fisheries Management (EAFM)
3. Day 3: Planning workshop

DAY 1

Opening Program

The Opening Ceremony was attended by Engr. Lourenco Borges Fontes, Director General of the Ministry of Agriculture and Fisheries (MAF) of Timor-Leste. He recognized the importance of the training course for MAF and the country, and encouraged all participants to learn as much as they can for future application. He also expressed appreciation to all co-organizers. He likewise adamantly urged the participants to stay on for the entire duration of the training course.

Group photo of participants, guests and resource persons

Session 1. A range of coastal, fisheries and ocean resources paradigms

Presentation and plenary discussion (Presenter: Bob Pomeroy)

Outline

- Time line of various approaches in fisheries management
- EBM and EBFM
- ICM, ICMRM, IWM, IRBM
- MPA, network of MPAs, Marine Spatial Planning

To avoid confusing the participants of the various paradigms being introduced in Timor-Leste and to situate ICM and EAFM in the various development initiatives, Bob Pomeroy started the three-day training program by elucidating on the historical developments of resource management approaches, their definitions,reference points and scope of application.He touched on the timeline of various fisheries management approaches from single species in the 1960's to multi-species tropical fisheries in the 1980's and the ecosystem approach to fisheries management in the 2000's. Ecosystem-based management (EBM) was introduced in the 2000's and it covers both land and sea while ecosystem-based fisheries management (EBFM), which was also introduced in the 2000's, only applies to fisheries.

He also illustrated where ICM fits into the picture and its overall relation to EAFM. Governance paradigms were also presented such as community-based resource management, rights-based management, and co-management as well as recent developments in marine protected areas (MPAs), network of MPAs, and marine spatial planning. Bob Pomeroy summed up that the overall goal of all these paradigms is sustainable development and foretold the participants that different groups will come in Timor-Leste , bringing with them the different paradigms described, butobviously their overall goal is to improve management of the resources.

Session 2. ICM framework and putting it in Timor-Leste context

Presentation and plenary discussion (Presenter: Luky Adrianto)

This first lecture on integrated coastal management (ICM) delivered by Luky Adrianto introduced the different values and services of the coastal ecosystem, the need for sustaining these values and services, multiple and conflicting uses that lead to environmental problems and resource decline, the concept of sustainable development, and ICM as an approach for achieving sustainable development of coastal areas.

A framework for sustainable development of coastal areas through ICM implementation was presented, which includes:

1) Development/strengthening of key elements of governance (policies, strategies and plans, institutional arrangements, legislations, information and public awareness, financing mechanism, and capacity development) in order to enable inter-agency and multi-sectoral partnerships and policy and functional integration in addressing priority concerns in coastal areas;

2) Development and implementation of management programs that address priority concerns in coastal areas including natural and man-made hazards, habitat restoration and resource protection, water use and supply, fisheries, food security and livelihood, and pollution reduction and waste management; and
3) Application of a State of the Coasts reporting system to monitor progress and achievements in ICM implementation.

Luky Adrianto, presenting the ICM framework and processes

Key considerations and challenges as well as recommendations to strengthen the above elements/aspects to support better marine and coastal management were also presented, including a summary of progress in Timor-Leste related to each element/ aspect, highlighting areas that need further improvement.

Session 3. The concept, principles, framework and processes of ICM

Presentation and plenary discussion (Presenter: Luky Adrianto)

This session started with a discussion of the definition of the coastal area/zone, dynamic interaction of the land, sea and human environments, and different characteristics and multiple uses of the coastal zone. An exercise was conducted which required 5 selected participants representing different sectors to map out selected activities in a given coastal area based on their sector's mandates. The exercise highlighted overlaps and conflicts if sectoral activities are undertaken without coordination, and emphasized the limitations of the conventional or sectoral management approach and the need for an alternative management system that will promote integration and coordination across sectors and disciplines to address complex management issues. ICM was introduced as an alternative management framework for addressing complex management issues and for sustainable development of a given coastal area. A hierarchy of sustainable development principles was discussed, and how ICM implementation operationalizes these principles, including adaptive management, integration and coordination, and ecosystem-based management. The lecture emphasized that ICM is basically the governance

of human activities that affect the sustainable use of goods and services generated by the coastal and marine ecosystems, and basically entails changing the mindset from sectoral to integrated planning and management.

The concept of integration was well appreciated by the participants. The open discussion focused more on the definition of coastal zone and boundary limits. While boundary limits for the coastal area/zone need to be defined and delineated for purposes of management, there are no standards set and coastal zone boundaries differ from country to country. Examples from Indonesia, the Philippines, the US and other countries were provided. The participants agreed on the need to clearly define the coastal zone and boundary limits for Timor-Leste .

Session 4. The ICM program development and implementation cycle

Presentation and plenary discussion (Presenter: Luky Adrianto)

This session started with a discussion of triggers for ICM development and implementation, including internal (e.g., environmental problems, national policies, etc.) as well as external (international agreements, external funding, etc.) factors and other considerations. The session then presented an overview of an ICM development and implementation cycle that allows stage-wise development of an ICM program. The ICM cycle consists of six basic stages: preparation, initiation, development, adoption, implementation, and refinement and consolidation. The process has activities that are dynamically linked, and aimed at enhancing the coordination, integration and cost-effectiveness of diverse coastal and marine initiatives. Key outcomes of the ICM process include the setting of key governance elements for sustainable development (e.g., coastal strategy containing shared vision and mission, policies, legislations, institutional arrangements, financing mechanisms, local capacity development, stakeholder education and participation) and development and implementation of priority issue/area-specific management programs with measurable targets within specific timeframes. Each iteration of the cycle leads to refinement and strengthening of ICM program implementation. Local government commitment, participation of various resource users and stakeholders, support from local ICM champion/s, involvement of technical experts, and a knowledgeable and capable coordinator are important to ensure the success of an ICM program. Potential constraints to the initiation of the ICM program should be identified at the onset so these can be considered in formulating the program strategies. Actual examples from various areas implementing ICM were used throughout the lecture.

The questions and discussions during this session covered the following:

- Existing examples/models for ICM implementation
- Need to establish sustainable ICM programs that will not depend on support from donors
- The present opportunity to develop and implement ICM programs in Timor-Leste considering that conditions in coastal areas of the country are still less complex compared to other areas like Indonesia
- The use of traditional knowledge alongside technical information

Session 5. Preparing an ICM program

Presentation and plenary discussion (Presenter: Luky Adrianto)

In this Session, Luky Adrianto discussed the basics of preparing an ICM program, including the major activities and outputs. He highlighted the need for and key considerations in establishing a project coordination and management mechanism, importance of government and private sector involvement and stakeholder consensus and participation in program planning, necessary resource arrangements, capacity building to prepare project personnel as well as key stakeholders to undertake various initiatives under the ICM program, and importance of a monitoring and evaluation system to be implemented throughout the ICM cycle. The importance of establishing a high-level inter-agency and multi-sectoral ICM coordinating committee to provide policy direction and guidance to the program and facilitate collaboration among stakeholders was emphasized. Examples of existing coordination committees and program management arrangements in various ICM sites in the East Asian Seas region were presented. Various possibilities for financial resource arrangements were also discussed including partnerships and innovative financing schemes with the private sector. "Well begun is half done" illustrates the importance of the preparing stage in the entire ICM development and implementation cycle.

The questions and discussions during this session were related to the importance of developing ICM programs building on existing resources, capacities and related initiatives, and focusing on selected priorities. This session also served as an introduction to the planning workshop/exercise to be conducted on Day 3.

DAY 2

The topics for the day were primarily focused on fisheries management, particularly on ecosystems approach to fisheries management (EAFM). The day covered seven sessions and the presentations were delivered in English language, translated to the participants to Tetum by two alternating translators. Questions from the participants were likewise translated to the presenters. Short question and answer portion were conducted after each session. Luky Adrianto provided a summary of previous days event and the rest of the day was spent to the introduction of and discussion on EAFM

Session 1. Why manage fisheries?

Presentation and plenary discussion (Presenter: Nygiel Armada)

Outline

- Exploitation of fisheries by human through time
- The capture fisheries
- Importance of small-scale fisheries
- Importance of developing countries to the world fisheries
- Significance of marine biodiversity in the region

Nygiel Armada's presentation started with the trend in capture fisheries harvest through time, stressing that excessive fishing occurred primarily during the later part of the century and that harvest trend has practically flattened out during the last decade. The presentation likewise showed that this is caused by increasing trend in fishing effort, particularly in the Asian region, and the effect is declining catch rates by individual fishers.

The next topics tackled were the importance of capture fisheries to world production and food requirement of the world population; the contribution of small-scale fisheries both to harvest and as livelihood opportunities; and importance of small-scale fisheries relative to large-scale fisheries in terms of employment, capital cost, and relative fuel consumption. The presentation concluded with the contribution of developing countries to world fisheries, the areas of significant marine biodiversity, as well as the threats from current human activities and exploitation levels.

There were some clarifying questions but the discussion mostly focused on the unreliability of statistical information on annual capture fisheries harvest of Timor-Leste and the need to develop a scheme to improve fisheries statistical data collection. Everybody appears to agree at this early stage in the training that to properly manage fisheries, reliable information must be generated.

Session 2. Issues and threats in fisheries

Presentation and group exercise (Presenter: Bob Pomeroy)

Outline

- Weak governance
- Socioeconomic conditions
- Ecosystem change

Bob Pomeroy highlighted the fact that fisheries in general and in Southeast Asia in particular, is already very complex, and this is further compounded by a range of issues and threats. He pointed out that weak governance is one of the main causes of the present poor condition of fisheries and factors characterizing weak governance in fisheries in the region include corruption, lack of stakeholder participation, poor enforcement, weak institutional capacity, overcapacity of fishing fleets, inadequate information, and illegal fishing.

Participants of the three-day training workshop on "Ecosystem approach to managing coastal and marine resources in Timor-Leste

This is followed by socioeconomic condition, specifically, poverty, globalization of trade, technological changes, population growth, poor health infrastructure, political and economic marginalization, and gender inequality. A third group of issues and threatsis ecosystem change. This is brought about on one hand by human activities that lead to pollution, overharvesting of some species, habitat degradation, and habitat destruction, and on the other hand, caused by natural events such as climate change and altered freshwater inflow.

The session ended with an exercise of finding out the major issues and threats facing fisheries in Timor-Leste. Each participant was asked to write down what he or she thinks is the most crucial threat or issue facing the fisheries in the country or his particular district. Result below showed that lack of human resource capacity building is the most frequent issue named, followed by illegal fishing and habitat destruction, and weak governance.

Identified issues and threats and the number of respondents

Issues	No. of respondents
Inadequate or lack of human resources capacity building	13
Illegal fishing and habitat destruction and no enforcement	9
Weak governance/legislation	6
Lack of community awareness and capacity	2
Alternative livelihood/income	1
Politics (limited attention to fisheries, lack of leaders knowledge and political will)	1
Limited data on fisheries	1
Poverty	1
Fisheries zones	1
Limited fishing equipment	1

Session 3. Where do we begin?

Presentation and plenary discussion (Presenter: Nygiel Armada and Bob Pomeroy)

Outline

- Introduction: the Fishery system
- The Natural System
- The Human System
- The Management System

Having pointed out the importance of the fisheries in the region, the issues and threats, as well as the need to manage the fisheries asdiscussed in the previous sessions, this particular session focused on the introduction to fisheries management. Nygiel Armada started the session by introducing the participants to the Fishery System, and its components, the natural, human and management systems. He provided specifics on the natural system with fish as a major component, and discussed some aspects of fish characteristics and behaviors (life cycle, migration and spawning) important to fisheries management including the role of various marine habitat systems and the interaction among various species of fish and their habitats.

Bob Pomeroy took over from there and discussed the human and management systems. He pointed out the different roles and needs of men, women, family, household, and community as well as other players such as the harvesters (boats fleets and gears), support services (boat builders, gear makers, and credit), and the post harvest (processing, marketing, distribution and buyers). He introduced the management system as an interacting process of broad activities of fishery policy and planning, fishery management (tactical and operational management), fishery development, and fishery research.

Session 4. Fisheries as renewable resources

Presentation and plenary discussion (Presenter: Nygiel Armada)

Outline

- State of capture fisheries
- Threats to capture fisheries
- Basic fisheries management principles
- Open access and overfishing
- Fisheries management actions

Session 4 was meant to highlight the simple fact that fisheries are living resources and can continue to be renewable if properly managed. Nygiel Amada started the session by providing a review of the state of capture fisheries as well as the existing major threats to the fisheries including climate change. Three principles were discussed to provide the basis for the understanding of the renewability of a living resource. First was Russel's axiom to show the dynamics of a fish stock, second was Surplus Production model to highlight that fishing can be sustainable but only at a limited level of fishing effort, and third was Stock Size and Recruitment to demonstrate that future addition to the fishery is dependent on the number and size of their

parent stocks. The final message was fisheries management is the key and this has been done in the region using various approaches, from a single species in the 1960's to multispecies in the 1980's to the integration of habitat in 1990's and finally, to ecosystems approach to fisheries management in 2000's.

Session 5. EAFM in the region – the FISH Project experience

Presentation and plenary discussion (Presenter: Nygiel Armada)

Outline

- FISH Project – Philippines
- FISH Project's ecosystem's approach
- Fisheries management interventions
- Measuring the gains
- Key governance challenge

After discussing various aspects fisheries management approaches and principles from previous session, Session 5 provided an example of EAFM applied in the region. Nygiel Armada presented the FISH Project experience to highlight principles earlier discussed and provide some insights on some challenges inherent in the region. FISH Project was a USAID funded project mainly aimed at implementing EAFM in selected ecosystems in the Philippines. As a development project it was designed to achieve a change in behavior, in this case, a change in exploitation pattern by fisheries users. In a period of seven years, fisheries management were set in place including network of marine protected areas, species-specific management, gear management, registration and licensing, zoning, fishing effort restriction, law enforcement, awareness and capacity building. The presentation highlighted the positive influence of being able to measure the gains. However, there were also major challenges encountered like the sustained involvement of too many players in the initiatives, equity issues, the appropriate scale of the ecosystem, and consistency and sustainability of enforcement.

A key question from the floor was posed and the participant wanted to find out what among the various interventions played a crucial role in the FISH Project that may also apply to Timor-Leste and Nygiel Armada's reply was awareness and capacity building. Another participant inquired what would be the best management approach for Timor-Leste when there is not much information to begin with in the first place and Nygiel Armada's response was to start collecting data now but in the mean time, while data is being collected, already start with using indigenous knowledge, make some cautious decisions and fisheries management interventions from those information, and improve those interventions as information become available. Bob reinforced this by drawing a diagram of how adaptive management works.

At this point the need to have detailed discussion on co-management became apparent and the subsequent sessions were adjusted to allow ample time for a co-management presentation by Bob Pomeroy.

Session 6. The fishery management planning process

Presentation and plenary discussion (Presenter: Bob Pomeroy)

Outline

- Management system
- Fishery objectives
- Management objective driven approach
- Planning process
- Fishery management plan
- Fishery management unit
- Precautionary approach
- Adaptive management

To start off this session on fishery management planning process, Bob Pomeroy highlighted the fact that capture fisheries are most difficult resource to manage because they are very much multi-objective activities. They serve a variety of social, cultural, political, economic and ecological goals. The objectives to be pursued will depend upon societal policy decisions, and the choice of management measures will depend upon those objectives. Bob Pomeroy dwelt a bit of detail on the importance of taking the Management Objective Driven approach in contrast to the standard Stock Assessment Driven approach. With the dearth of fisheries information in Timor-Leste , the Management Objective Driven approach can begin with broad objectives and simple short-term measures that will move the fishery in the direction of the objectives, incorporate obvious common-sense improvements or controls, and as information becomes available, the plan can be revisited and improved. In discussing the details of the fisheries management planning process Bob Pomeroy placed emphasis on the precautionary approach and adaptive management, which are consistent with the Management Objective Driven approach.

Session 7. Fisheries management measures

Presentation and plenary discussion (Presenter: Bob Pomeroy)

Outline (Emphasis made on co-management)

- Ecosystem-based management
- Integrated coastal management
- Stakeholder participation via co-management & CBNRM
- Rights-based management (use rights & limiting access)
- Marine protected areas
- Habitat restoration, creation, enhancement
- Enforcement and compliance

In earlier sessions, the need to have detailed discussion on co-management became apparent. Bob Pomeroy made adjustments to this presentation to allow ample time to discuss co-management. He started the session by summarizing possible management responses to fisheries issues and concerns earlier discussed but zeroing on the need for an integrated

approach, recognizing the other systems (natural and human systems), and in particular, through ecosystem approach to fisheries management (EAFM). Also, he reminded the participants about the importance of traditional and indigenous knowledge, particularly in the case of an information-limited situation like in Timor-Leste and the option of taking the Management Objective Driven approach. Bob Pomeroy discussed that from a governance point of view, the successful model for better fisheries management started with community-based management that ultimately evolved into co-management. He stressed the limitations of distant, under-staffed and under-funded fisheries agencies and the increasing role of community members and users participation in decision-making and control over access.

DAY 3

Luky Adrianto assisting the participants during the workshop

The entire day 3 of the training program was allotted to action planning. Luky Adrianto and Ingrid Narcise of PEMSEA facilitated Session 1 and Session 2 on the preparation, initiation, and next step activities of ICM programs, particularly in selected pilot districts. Bob Pomeroy and Nygiel Armada focused on identification of immediate next steps, priority training needs, and immediate next step activities on EAFM.

Session 1: Preparing and initiating ICM programs integrating considerations of sustainable fisheries management and livelihood development

Group exercise (Faciltators: Luky Adrianto and Ingrid Narcise)

This session took the participants through the process of preparing for the development of ICM programs using the districts of Manatuto and Liquica as examples. The exercise included identifying the boundaries/scope of theICM program, mapping of key features of the area as well as key issues and existing management responses/initiatives, identifying and assessing stakeholders and potential program management and coordination mechanism, preparation of work plans, and identification of training/capacity building needs.

The mapping exercise showed important features of the selected coastal areas including forests, agricultural lands, rivers, settlement areas, beaches, mangroves, coral reefs, seagrasses, as well as various uses of the

Participants preparing ICM draft work plans

coastal areas including seaweed farming, salt-making, fisheries, recreation and other activities. Various initiatives related to coastal resources management and livelihood development were also shown including those supported by PEMSEA, CTI and FAO. Key stakeholders identified include the District/Subdistrict administrations, fisheries/agriculture, environment, sanitation, infrastructure and tourism agencies, non-government organizations (NGOs), academic institutions, communities, and international organizations. The stakeholders were evaluated according to their power and interest related to marine and coastal management, and grouped as primary and secondary/supporting stakeholders. The evaluation was used as basis for determining the ICM program coordination and management mechanism, including the Program Coordination Committee (PCC), Program Management Office (PMO) and staff, Technical/ Scientific Committee and supporting organizations.

For both Manatuto and Liquica, the Ministry of Agriculture and Fisheries (MAF) was identified as lead agency to be supported in the PCC by selected agencies. MAF (District Office) was also identified to host the PMOs. Technical Advisory Committees will include representatives from various agencies and academic institutions. Local NGOs and international organizations were identified to provide support. The action plans developed include the establishment of the ICM program coordination and management mechanism as well as implementation of selected on-the-ground activities related mostly to alternative livelihood development, fisheries, aquaculture, habitat rehabilitation, and community education such as:

- Salt-making, setting up of fishpond, floating fish cage, and green mussel farm, and seagrass and mangrove rehabilitation for the Subdistrict of Bazartete, Liquica District; and
- Salt-making, fish processing, seagrass rehabilitation, co-management training, socialization of fisheries laws, and community education for the Subdistrict of manatuto Vila, Manatuto District.

Further discussions focused on the following:

- Development of governance mechanisms for the marine and coastal resources management program and specific action programs to address priority issues
- Need to identify appropriate stakeholders, including from the government and various resource users
- Need to build on and integrate existing programs/projects/initiatives in the area
- Need to delineate operational and manageable boundary and priority issues to be addressed first and scale up spatially and with regard to issues later after enough capacity has been built
- Various tools available to identify priorities, including rapid appraisal, community consultations and environmental risk assessment
- As ICM demonstration sites, the two sites can also be identified as points for fisheries monitoring, and can be used as models for other areas

A participant presents workshop outcomes

Following the ICM/EAFM Training, a training workshop on rapid appraisal and preparation of a State of the Coast (SOC) baseline report will be conducted in Dili, to be followed by conduct of rapid appraisal in Manatuto and Liquica and

preparation of SOC reports. Recommendations from the SOC reports will be used as basis in developing work plans for ICM development and implementation for both sites, focusing on livelihood development and marine and coastal resources management, and building on existing related initiatives.

Session 2: Identification and prioritization of fisheries managementtraining needs

Group exercise (Facilitator: Bob Pomeroy and Nygiel Armada)

The session was spent, to a large extent, to question and answer and most questions were primarily on what approach or method of elements of EAFM is appropriate for Timor-Leste .

Some key questions and discussions on EAFM included the following:

Q: Example of policies giving preference to small scale over commercial scale fisheries?

A: In the Philippines commercial-scale fisheries are not allowed inside municipal waters defined as 0-15 km from the coast; the type of fishing gears used by commercial-scale fisheries are also subject to approval. Within municipal waters, marine spatial planning is a good way to plan priority activities and to designate uses of specific areas and limit conflicts among small-scale fisheries and between fishing activity and marine habitat.

Q: What are the key immediate steps appropriate for Timor-Leste owing to the fact that fisheries related information are practically non-existent and where does stock assessment comes in?

A: If the fisheries management plan has management-driven objectives, there is no need to wait to have all information. One could start with baseline data using indigenous knowledge, particularly information from fishermen, over time, collect scientific information; and use both combination of traditional and scientific information. Better to apply input control (control fishing effort, licenses, gears) than output control, like the quota system, which does not work in tropical multi-species system. In Indonesia, there is a national committee on stock assessment established under the National Act 45 on fisheries management areas. Stock assessment activitiesare undertaken involving scientists from universities. But Indonesia is also embracing a paradigm shift in fisheries management planning by moving from output to input control, management objective-driven and participatory fish stock assessment. For Timor Leste, afollow on trainings need to be organized related to information collection and stock assessment. Currently there is a stock assessment initiative in Indonesia in collaboration with NOAA, perhaps NOAA can contribute in the trainings as a partner, depending on training needs to be identified.

Q: How applicable is the quota system in Timor-Leste ?

A: Difficult to establish quota if you do not know how much fish is there. Start fisheries management with input control and over time as more data is collected we may be able to set

up output control system. Stock assessment and monitoring will have to be conducted to refine the system and after some time we may have enough information to set quota. In the US, a combination of input and output control is being used.

Q: How to develop licensing system?

A: Start with inventory of available fishermen, boats, fishing gears, etc.Provide deadline/target date for full implementation of licensing system while at the same time establish and agree on the limits of numbers of fishermen, boats and gears to be licensed. Improve on these figures as information becomes available.

The facilitators also took the opportunity to further highlight that EAFM is not about one method over the other but more of a building block, working from ground up, starting with methods appropriate for Timor-Leste , where there is little or no information, and improve from there as information becomes available. Many participants voiced out the critical role of capacity building which the workshop group discussed in detail.

Eventually theparticipants were asked to name all training needs they think are relevant to Timor-Leste in terms of the development and management of their fisheries based on current realities. They were then asked to vote just one training need each. The table below provides a summary of votes indicating co-management and stock assessment as the two most crucial training needs in for fisheries in the country.

One key concern that the participants expressed was that almost all trainings they have been involved in so far just ended as training and no follow up, particularly in practicing the skills they have learned from those trainings, has ever received any support. The participants were adamant in their suggestion that the next training, if ever conducted, should be hands-on and should include provisions for support in initial field implementation.

Identified capacity building needs and their order of priority

Training needs	No. ofvotes
Co-management	6
Stock assessment and management	5
Registration and licensing	3
Marine protected area	3
Habitat assessment (fish visual census, manta tows)	2
Socioeconomic assessment	2
Market analysis	1
Policy analysis	-
Post harvest technology	-
Enterprise development	-

A tentative schedule of next step activities, particularly the trainings, were agreed upon:

Training needs	Tentative Date	Resource Persons
Co-management, market analysis	Oct 2011	R. Pomeroy, N. Armada
Stock assessment	Nov 2011 or Jan 2012	N. Armada, NOAA
Registration and licensing	Jul-Aug 2012	N. Armada, NOAA
SOCMON		R. Pomeroy, NOAA
Enforcement, MCS		NOAA

III. EVALUATION

PEMSEA has a standard evaluation system to determine the effectiveness of the training and this was used for this particular course. Unfortunately only ten (10) out of 35 participants (29%) submitted accomplished course evaluation forms.Majority or eighty percent (80%) of the respondents concluded that the objectives of the course were fully achieved and twenty percent (20%) concluded that it was somewhat achieved. They considered all topics as relevant and appropriate, and suggested to include the following:

- Methods/tools to be used (in ICM/EAFM)
- Stock assessment
- Resources mapping / identification
- Population dynamics
- Training capacity for formal education, starting from basic to high level
- Co-management
- MPA establishment
- Statistics and data collection

In terms of usefulness and relevance of the exercises and group work, thirty percent (30%) of respondents evaluated it as very useful, sixty percent (60%) evaluated it as generally useful,and only 1 participant concluded that it was somewhat useful. All of the respondents confirmed that the course met their expectations. Majority of the respondents elaborated that it would help them in undertaking tasks related to sustainable development of marine and coastal resources in general, and fisheries resources in particular, and in developing supporting institutional arrangements involving concerned government institutions working on the environment and fisheries. The materials were also found to be very useful as references for office and field work.

Key outcomes of thetraining include: a) deeper appreciation and understanding of integrated approaches for managing marine and coastal resources; b) need for further capacity building to better manage marine/coastal and fisheries resources in Timor-Leste ; c) need to strengthen capacity of professional staff and institutional arrangements; d) need for information and knowledge-sharing among countries and areas in the region that are implementing similar integrated management programs; e) need for involvement of communities and other resources

users in managing marine and coastal areas and resources; f) need for direct application of knowledge gained from the training especially in the field / districts.

For the lecturers, on a scale of 1-5 (with 1 as excellent and 5 as poor), the respondents rated all lecturers excellent and outstanding with regard to a) mastery of the topic; b) clarity of presentation; c) accuracy and quality of information; d) clear and effective delivery; e) ability to answer questions satisfactorily; f) adequate use of audio-visual aides; and g) enthusiasm.

Using the same scale above, ninety percent (90%) of respondents rated the organization of the lectures as excellent and ten percent (10%) rated these as outstanding.Majority of participants (70%) rated the exercises, group work and group presentations as outstanding. Ten percent (10%) rated it as excellent, and 20 percent (20%) rated it as average. Training staff and the over-all coordination of training activities were rated in general as outstanding and excellent.

Sixty percent (60%) of the respondents rated the training room as excellent, while ten percent (10%) and thirty percent (30%) rated it as excellent and average, respectively.The audio-visual equipment was rated as excellent (20%), outstanding (40%) and average (30%). Forty percent (40%) rated supporting computers and printers for the training as outstanding although improvements are needed since this was also rated as average (20%), slightly below average (20%) and poor (20%).In terms of food and catering services, the participants rated these as excellent (70%), outstanding (10%) and average (20%).

Additional comments and suggestions from the participants include the following:

- Continuation of capacity building activities related to marine and coastal management and fisheries management
- Commitment to carry out identified trainings
- More time for the given lectures; longer duration for the training course; this kind of course needs a minimum of 10 days
- Conduct of trainings at the district level
- In the next training, include explanation of methodologies if available
- Comparative study of Indonesia and Philippines (or perhaps more examples)
- Involvement of decision-makers and other stakeholders in training courses

IV. RECOMMENDATIONS

Based on the participants' evaluation of the course, the Training Workshop on Ecosystem Approach for Managing Coastal and Marine Resources in Timor-Leste achieved the main objectives set and majority of the participants' expectations were met. Significant recommendations for further improving the training course and for future trainings/activities were also obtained. Capacity building and technical needs were identified, and initial plans for

follow on trainings were agreed on. There is a need to design follow on activities considering these recommendations and agreed training needs.

The training course also served as a venue for promoting partnerships and strengthened collaboration between PEMSEA, US-CTI Support Program, CTSP, NOAA and MAF, national agencies, district offices, academic institutions, and ongoing programs/projects in Timor-Leste concerning marine and coastal management (PEMSEA, CTI, ATSEA, FAO). This initial collaboration should be continued by looking at each program/project's strengths and potential contribution to overall marine and coastal management in Timor-Leste , determining complementary activities, conducting joint training courses or streamlining and coordinating trainings that may have been undertaken separately, and sharing information on respective project/site activities.

And to reiterate participants' concern, important capacity building trainings should include financial provisions for conducting field activities to practice skills learned from those trainings.

V. ANNEXES

Annex 1. Training Program

Ecosystem Approaches for Managing Coastal and Marine Resources in Timor-Leste , June 20-22, 2011, East Timor DevelopmentAgency (ETDA), Dili, Timor-Leste

Day	Activities	Speaker/Lecturer
Day 1, 20 June 2011		
8:00 – 9:00	Registration	
9:00 – 9:15	Opening Ceremony *Opening Remarks: Eng. Lourenco Borges Fontes, Director General, Ministry of Agriculture and Fisheries, Timor-Leste*	
9:15 – 9:20	Workshop Objectives	Dr. Robert Pomeroy
9:20 – 9:40	Session 1: A range of coastal, fisheries and ocean resources paradigms	Dr. Robert Pomeroy
9:40 – 10:00	Coffee Break	
10:00 – 12:00	**Development and Implementation of ICM Programs** Session 2: Sustainable development of marine and coastal resources in Timor-Leste : Challenges and opportunities. Session 3: The concept, principles, framework and processes of ICM	 Dr. Luky Adrianto Dr. Luky Adrianto
12:00 – 1:30	Lunch Break	
1:30 – 3:30	Session 4: The ICM program development and implementation cycle	Dr. Luky Adrianto
3: 30 – 3:45	Coffee Break	
3:34 – 5:00	Session 5: Preparing an ICM program	Dr. Luky Adrianto
Day 2, 21 June 2011		
9:00 – 9:10	Synthesis of Day 1 Lectures	Dr. Luky Adrianto
9:10 – 10:00	**The Ecosystem Approach to Fisheries Management** Session 1: Why manage fisheries? Session 2: Issues and threats related to fisheries management	 Prof. Nygiel Armada Dr. Robert Pomeroy
10:00 – 10:15	Coffee Break	
10:15 – 12:00	Session 3: Fisheries management: where do we begin? • Fishery systems/natural systems • Human and management systems Session 4: Fisheries as renewable resources	 Prof. Nygiel Armada Dr. Robert Pomeroy Prof. Nygiel Armada

12:00 – 1:30	Lunch Break	
1:30 – 3:30	Session 5: Example of EAFM: Fish Project in the Philippines Session 6: Management planning process	Prof. Nygiel Armada Dr. Robert Pomeroy
3:00 – 3:45	Coffee Break	
3:45 – 4:45	Session 7: Overview of different management measures for fisheries	Dr. Robert Pomeroy
4:45 – 5:00	Introduction to Day 3 Activity (Planning Workshop)	Dr. Luky Adrianto
Day 3, 22 June 2011, Planning Workshop		
9:00 – 10:00	Open discussion	Dr. Robert Pomeroy
10:00 - 12:00	Session 1: Preparing and initiating ICM programs integrating considerations of sustainable fisheries management and livelihood development	Dr. Luky Adrianto
12:00 – 12:30	Group presentation	Dr. Luky Adrianto
12:30 – 1:30	Lunch Break	
1:30 – 3:30	Group presentation and discussion	Ms. Ingrid Narcise
3:30 – 4:30	Session 2: Identifying and prioritization training and technical support needs	Dr. Bob Pomeroy and Prof. Nygiel Armada
4:30 – 5:00	Closing Program *Closing Remarks: Mr. Joao Amaral, Head of Fisheries Resources Management Unit, National Directorate for Fisheries and Aquaculture, MAF*	

Annex 2: List of guests, participants, and resource persons

OPENING CEREMONY GUESTS

Mr. Lourenco Borges Fontes
Director General
Ministry of Agriculture and Fisheries
Comoro, Dili, Timor-Leste
Tel: +670 7312310
Email: risonlia1@yahoo.com

Mr. Augusto Fernandes
National Director
National Directorate for Fisheries and Aquaculture (NDFA)
Ministry of Agriculture and Fisheries (MAF)
Comoro, Dili, Timor-Leste
Tel: +670 7312322
Email: fernandesa50@yahoo.com

TRAINING PARTICIPANTS

Mr. Aleixo Leonito Amaral
National Directorate for Fisheries and Aquaculture, Ministry of Agriculture and Fisheries (NDFA-MAF)
CTI Focal Point
Tel: +670 7507658
Email: amaralaleixo@yahoo.com

Mr. Jose Monteiro
NDFA-MAF
CTI/CTSP Facilitator
Tel: +670 7778285

Mr. Anselmo Lopes Amaral
NDFA-MAF
CTI/CTSP Community Facilitator
Tel: +670 7293852
Email: alopamaral@yahoo.com

Mr. Caetano Ximenes
Staff, Fisheries Resources Management, NDFA-MAF (PEMSEA Program Management Office)
Tel: +670 7310161
Email: xcaetano79@yahoo.com

Mr. Roberto Correia Lemos
Staff, Fisheries Resources Management, NDFA-MAF (PEMSEA Program Management Office)
Tel: +670 7286739
Email: robertolemos@rocketmail.com

Mr. Rafael Pereira Gonçalves
MAF - District Fisheries Officer, Liquiça District
Tel: +670 7324198
Email: rfl_goncalves@yahoo.com

Mr. Gustavo Rodrigues Pereira
MAF-Fisheries Staff, Liquiça District
Tel: +670 7347255

Mr. Jacinto Ribeiro dos Santos
National Directorate of Environment (DNMA), Liquiça District
Tel: +670 7387284

Mr. Ernesto Matos Soares
Environment Officer, DNMA, Manatuto District
Tel: +670 7295130

Mr. Sebastião Pinto
MAF-District Fisheries Officer, Manatuto District
Tel: +670 7266793

Mr. Mario Nicolau
Natural Resources Officer, Manatuto District
Tel: +670 7440196

Mr. Costanciodos Santos Silva
Head of Inspection Unit, NDFA-MAF
(ATSEF Coordinator)
Tel: +670 7299953
Email: sakalpala@yahoo.com

Mr. Eligito de Jesus Ximenes
MAF-District Fisheries Officer, Lautem District
Tel: +670 7258249

Mr. Antonino Caetano
National Directorate of Environment (DNMA), Lautem District
Tel: +670 7394699

Mr. Joao Dos Santos
National Directorate of Forestry, Lautem District
Tel: +670 7554180

Mr. Flaminio M. E. Xavier
Department Chief, National Directorate of Environment (DNMA), Dili
Tel: +670 7379940

Mr. Carlos de Jesus Freitas
National Directorate of Culture and Art, Dili
Tel: +670 7304364

Mr. Celestino Da Cunha Barreto
Staff, Fisheries Resources Management Department, NDFA-MAF
Tel: +670 7405885
Email: celes_fish70@yahoo.com

Mr. Mario Vieira
Staff, NDFA-MAF
Tel: +670 7402106

Mr. Tomas Gama do Rosario de Sousa
Staff, NDFA-MAF
Tel: +670 7257375
Email: toms32_sacrista@yahoo.com

Mr. Horacio A. Dos Santos Guterres
Staff, NDFA-MAF
Tel: +670 7306061
Email: santoshoracio2004@yahoo.com

Mr. João Xavier do Amaral
Head of Fisheries Resources Management Department, NDFA-MAF
Tel: +670 7510195

Mr. Orlando Halik Kalis
Staff, NDFA-MAF
Tel: +670 7237086

Mr. Lino De Jesus Martins
Staff, NDFA-MAF
Tel: +670 7211651
Email: martinslino@yahoo.com

Mr. Bendito Trindade
FAO-DFM Oecuse
Tel: +670 7853188

Mr. Antonio Daci Lelo
FAO-DFM Liquiça
Tel: +670 7255150

Mr. Junior Pascoal de Carvalho
FAO-DFM Bobonaro
Tel: +670 7359300

Mr. Filomeno Da Costa Ximenes
FAO-DFM Baucau
Tel: +670 7366757

Mr. Sabino Adonia Leto
FAO-DFM Atauro
Tel: +670 7302152

Mr. Marvao Soares
Staff, National DirectorateofForestry (DNF-MAF), LautemDistrict
Tel: +670 7579614

Mr. Pascoal Afonso Belo
National DirectorateofForestry (DNF-MAF), Dili
Tel: +670 7243015

Ms. Palmira de Carvalho Soares
The National Universityof Timor-Leste (UNTL)
Tel: +670 7442625
Email: myra_fun2@yahoo.com

Mr. Mariano Da Costa Ximenes
Tel: +670 7316637
Tel: +670 7509652
Email: pr.marx@gmail.com

Mr. Arianto Martins De Jesus
English Department, Education, Science, Humanities and ArtsFaculty, UNTL
Tel: +670 7749646
Email: martin_ari@yahoo.com

Mr. Etelvino de Carvalho
The National Universityof Timor-Leste (UNTL)
Tel: +670 7658603
Email: carvalhoetelvino@yahoo.com

RESOURCE PERSONS AND FACILITATORS

Dr. Robert S. Pomeroy
Professor, University of Connecticut - Avery Point Campus
Agricultural and Resource Econ/Connecticut Sea Grant
380 Marine Science Bldg.
1080 Shennecossett Road
Groton, Connecticut 06340-6048
Tel: (1) (860) 405 9215
Fax: (1) (860) 4059109
Email: robert.pomery@uconn.edu

Prof. Nygiel B. Armada
Fisheries Management Specialist
USCTI Project Integrator
Tel: +09189859981
Email: narmada@uscti.org

Dr. Luky Adrianto
Center for Coastal and Marine Resources Studies(CCMRS)
Bogor Agricultural University
Kampus IPB Darmaga Bogor 16680
Indonesia
Tel. 62-251-8374820
Fax. 62-251-8374726
Mobile : 62-81314288865
Email: Luky Adrianto@gmail.com

Ms. Cristine Ingrid Narcise
PEMSEA Office Building
DENR Compound, Visayas Avenue
Quezon City
Metro Manila, Philippines
Tel: +63 2 929 2992 local 114
Telefax: +63 2 9269712
Email: cinarcise@pemsea.org

Mr. Michael Abbey
National Oceanic and Atmospheric Administration (NOAA) Fisheries
Office of International Affairs
1315 East West Highway, 12659
Silver Spring, Maryland 20910 USA
Tel: (1) (301) 713 9090 ext 187 (office)
Fax: (1) (301) 713 2313
Mobile: (1) (301) 938 9544
Email: Michael.Abbey@noaa.gov

Mr. Rui Pinto
Coordinator, Coral Triangle Support Partnership
Dili, Timor-Leste
Tel: +670 7363220
Email: ruimiguelpinto@yahoo.com.br

Mr. Niall Byrne
Management Advisor
Coral Triangle Support Partnership
Dili, Timor-Leste
Tel: +670 734 5782
Email: niallbyrne10@gmail.com

Annex 3: List of presentations

Day 1:

Session 1: A range of coastal, fisheries and ocean resources paradigms
Dr. Robert Pomeroy
Session 2: Sustainable development of marine and coastal resources in Timor-Leste : Challenges and opportunities.
Dr. Luky Adrianto
Session 3: The concept, principles, framework and processes of ICM
Dr. Luky Adrianto
Session 4: The ICM program development and implementation cycle
Dr. Luky Adrianto
Session 5: Preparing an ICM program
Dr. Luky Adrianto

Day 2:

Session 1: Why manage fisheries?
Prof. Nygiel Armada
Session 2: Issues and threats related to fisheries management.
Dr. Robert Pomeroy
Session 3: Fisheries management: where do we begin?
- Fishery systems and natural systems: *Prof. Nygiel Armada*
- Human and management systems: *Dr. Robert Pomeroy*

Session 4: Fisheries as renewable resources
Prof. Nygiel Armada
Session 5: EAFM in the region: Fish Project in the Philippines.
Prof. Nygiel Armada
Session 6: The fishery management planning process.
Dr. Robert Pomeroy
Session 7: Overview of different management measures for fisheries.
Dr. Robert Pomeroy

Day 3:

Session 1: Workshop on preparing an ICM program.
Dr. Luky Adrianto